CLAIM AMENDMENTS

1. (Currently amended) A tunable electromagnetic signal filter comprising:

a dielectric constant adjustment signal generator for generating a dielectric constant adjustment signal;

a first element having a capacitance;

a second element having an inductance;

the first and second elements configured as an electromagnetic signal filter having a resonant frequency;

a ferro-electric material directly fabricated onto ~~positioned proximate~~ the first element for adjusting, responsive to the dielectric constant adjustment signal, the capacitance of the first element for adjusting the resonant frequency;

wherein a quality factor of the first element, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 80.

2. (Original) The filter of claim 1, wherein the quality factor is greater than about 180.

3. (Original) The filter of claim 1, wherein the quality factor is greater than about 350.

4. (Currently amended) A tunable electromagnetic signal filter comprising:

a dielectric constant adjustment signal generator for generating a dielectric constant adjustment signal;

an element having a capacitance and a quality factor;

a volumetric resonator;

the element and the resonator configured as an electromagnetic signal filter having a resonant frequency;

a ferro-electric material directly fabricated onto ~~positioned proximate~~ the volumetric resonator ~~first element~~ for adjusting, responsive to the dielectric constant adjustment signal, the capacitance of the first element for adjusting the resonant frequency; and;

wherein the tunable electromagnetic signal filter is constructed to operate in a temperature range between about -50 degrees Celsius and 100 degrees Celsius.

5. (Original) The filter of claim 1 or 4, wherein the quality factor, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 80 for a capacitance in a range between about 0.3 pF and 3.0 pF.

6. (Original) The filter of claim 5, wherein the quality factor, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 80 for a capacitance in a range between about 0.5 pF and 1.0 pF.

7. (Original) The filter of claim 1 or 4 wherein the quality factor, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 180 for a capacitance in a range between about 0.3 pF and 3.0 pF.

8. (Original) The filter of claim 7 wherein the quality factor, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 180 for a capacitance in a range between about 0.5 pF and 1.0 pF.

9. (Original) The filter of claim 1 or 4, wherein the resonator comprises a

stripline resonator.

10. (Original) The filter of claim 1 or 4, wherein the resonator comprises a monoblock resonator.

11. (Original) The filter of claim 4, wherein a quality factor, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 80.

12. (Original) The filter of claim 4, wherein a quality factor, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 180.

13. (Currently amended) A method of designing a tunable ferro-electric filter, the tunable ferro-electric filter having a resonant structure and constructed to operate in a tunable frequency range, comprising:

generating a filter design for the filter, the filter design having a tunable device;

determining a minimum acceptable efficiency for the tunable filter, the minimum acceptable efficiency being represented by a quality factor, Q, of about 80 or more;

selecting a tunable ferro-electric device for use as the tunable device in the filter design;

fabricating the ferro-electric device onto the resonant structure; and

confirming that the Q is greater than about 80.

14. (Original) The method of claim 13, wherein the Q is greater than about 200.

15. (Original) The method of claim 13, wherein the Q is greater than about 300.